

# DEPARTMENT OF CONSUMER & INDUSTRY SERVICES

## DIRECTOR'S OFFICE

### GENERAL INDUSTRY SAFETY STANDARDS

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These rules take effect 15 days after filing with the Secretary of State

(By authority conferred on the director of the department of consumer and industry services by sections 16 and 21 of Act No. 154 of the Public Acts of 1974, as amended, and Executive Reorganization Order No. 1996-2, being §§408.1016, 408.1021, and 445.2001 of the Michigan Compiled Laws)

R 408.15313 of the Michigan Administrative Code, appearing on page 3840 of the 1979 Michigan Administrative Code, is amended to read as follows:

Bureau of Safety and Regulation, Standards Division Web-Site: [www.cis.state.mi.us/bsr/divisions/stds](http://www.cis.state.mi.us/bsr/divisions/stds)

## PART 53. TREE TRIMMING AND REMOVAL

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## GENERAL PROVISIONS

### R 408.15301. Scope.

**Rule 5301.** This part covers safety requirements for tools and equipment, their maintenance and repair, and the work practices used in spraying, trimming, pruning, repair and removal of trees by an employer and their use by an employee in, around and about a place of employment, except those operations considered to be logging or the harvesting of logs.

### R 408.15303. Definitions; B to I.

**Rule 5303.**(1) "Bucking" means to cut a felled tree into lengths.

(2) "Cabling" means to secure a limb into a position by means of a cable from the limb to another limb.

(3) "Chipper" means a mechanical device that reduces limbs and branches to small chips.

(4) "Direct contact" means to touch a conductor with a part of the body.

(5) "Felling" means to cut a tree from its stump.

(6) "Flammable liquid" means a liquid having a flash point below 100 degrees Fahrenheit.

(7) "Indirect contact" means to touch a conductor with a branch, limb, tool or equipment in contact with a body part.

### R 408.15304. Definitions; L to T.

**Rule 5304.**(1) "Limbing" means to cut limbs from a felled tree.

(2) "Qualified line clearance tree trimmer" means an employee trained to work in the proximity of energized conductors such as, but not limited to, an employee for an electric power or communications company.

(3) "Saddle belt or rope saddle" means a personal protective device used to support an employee when connecting to a climbing rope or safety strap. The saddle belt or rope saddle encloses the waist and legs or hips of the wearer.

(4) "Safety strap" means a restraining line secured at both ends to a safety belt or saddle to hold an employee to a fixed object.

(5) "Scare line" means a rope used to attach tools or equipment to a safety belt or saddle.

(6) "System operator/owner" means the person or organization that operates or controls the electrical conductors involved.

(7) "Tree worker" means an employee who does tree pruning, trimming, repairing or removal and works with the equipment used in such operations.

(8) "Topping" means to cut off the uppermost parts of a tree.

#### **R 408.15311. Employer responsibility.**

**Rule 5311.**..... An employer shall:

- (a) Provide training to each new employee regarding the requirements of this standard, the job hazards and safeguards before starting his assigned job. A job briefing shall be conducted before any tree job involving unusual hazards is begun.
- (b) Not allow a tool or equipment to be used which is not guarded according to state standards, has a defective guard or is otherwise unsafe.
- (c) Develop rescue procedures such as, but not limited to, removal of injured, stricken or electrically shocked employees from work positions aloft.

#### **R 408.15312. Employee responsibility.**

**Rule 5312.**..... An employee shall:

- (a) Report to his leader or supervisor any tool, equipment or safeguard which is defective.
- (b) Use personal protective equipment prescribed by the state safety standards.
- (c) Not remove a guard except for authorized operational or maintenance purposes. The guard shall be replaced or equivalent guarding provided before the equipment is returned for normal use.
- (d) Not operate any equipment unless trained in the operating procedures, hazards and safeguards and has been authorized to do so.

#### **R 408.15313. Personal protective equipment.**

**Rule 5313.**(1) Eye protection shall be provided and used, as prescribed in general industry safety standard, Part 33. Personal Protective Equipment, being R 408.13301 to R 408.13369 of the Michigan Administrative Code, by an employee working on any operation covered by this part.

(2) Head protection shall be provided and used, as prescribed in general industry safety standard, Part 33. Personal Protective Equipment, being R 408.13301 et seq. of the Michigan Administrative Code, by an employee working on any operation covered by this part.

(3) A safety belt, safety strap, tree trimming saddle belt, or rope saddle shall be provided to and used by an employee when working aloft in a tree, as prescribed in general industry safety standard, Part 33. Personal Protective Equipment, being R 408.13301 et seq. of the Michigan Administrative Code. A safety strap shall be worn and attached when aloft in the bucket of an aerial device. A saddle or safety belt made unsafe by damage, defect, or alteration shall not be used.

(4) The hardware for such a belt shall be forged steel or metal of equivalent strength. The snap shall be of the self-closing type and the support ring so designed as to prevent accidental disengagement.

(5) A climbing rope shall be not less than 1/2 inch (12.7mm), 3 or 4 strand first grade manila with a nominal breaking strength of 2,650 pounds (1202kg. approx.) or its equivalent in strength and durability. A climbing rope shall not be used to lower tree parts or handle equipment. A climbing rope shall be inspected for defects before each day's use.

(6) When an employee is exposed to vehicular traffic, an orange colored jacket or vest shall be provided by the employer to an employee, at no expense to the employee, and used by the employee. At nighttime the vest or jacket shall be reflectorized.

(7) Protective clothing and an approved respiratory device shall be provided by the employer to an employee, at no expense to the employee, and used by the employee during tree spraying where necessary to prevent absorption and inhalation of toxic substances which exceed the maximum allowable limits set by the division of occupational health.

#### **R 408.15314. Fire prevention.**

**Rule 5314.**(1) Flammable liquids shall be stored in an approved safety container equipped with an automatic closing cap and flame arrester.

(2) Equipment shall be stopped while being refueled, serviced or maintained. Restarting of portable equipment such as a chain saw shall be accomplished not less than 10 feet (3.05 M) from the refueling point.

(3) Smoking shall be prohibited while refueling.

#### **R 408.15315. Traffic control.**

**Rule 5315.**Where the fall of a limb or tree would create a hazard for an employee, pedestrian or vehicular traffic, a means such as, but not limited to, a barrier or traffic control director shall be used to prevent injury.

#### **R 408.15321. Electrical hazards.**

**Rule 5321.**(1) An electric conductor or communication line shall be considered energized unless the systems utility or owner indicates otherwise and they have visibly grounded the conductor or line.

(2) The location of underground utilities shall be determined before any digging or ditching operations are started.

(3) A tree worker or qualified line clearance tree trimmer shall not make a direct contact with an energized conductor.

(4) A tree worker shall maintain his body and tools not less than the distance prescribed in table 1 from an energized conductor. If these clearances cannot be maintained, the systems operator or owner shall be contacted to deenergize the conductor or provide protective measures or devices before the work is started.

(5) A qualified line clearance tree trimmer shall maintain his body and tools not less than the distance prescribed in table 2 from an energized conductor, except the trimmer may remove branches hanging on a conductor using approved insulated tools and equipment when the voltage is below 10 kV.

(6) A branch hanging on a conductor energized at more than 10 kV, shall be removed after the line is deenergized or removed by an authorized and trained systems operator employee or owner employee using approved protective tools and equipment.

**TABLE 1**

**Minimum Working Distances For Tree Workers**

<b>VOLTAGE</b>	<b>MINIMUM DISTANCE</b>
0 to 300 volts	1 foot (.305 M)
301 to 750 volts	2 Feet (.610 M)
751 to 50 kV	10 Feet (3.05 M)
50 kv or more	10 feet (3.05 M) plus .4 inch per 1000 volts

**TABLE 2**

**Minimum Working Distances for Qualified Line Clearance Tree Trimmers**

<b>VOLTAGE RANGE (Phase to Phase)</b>	<b>MINIMUM WORKING DISTANCE</b>
0 to 750 V	1 ft. (.305 M)
751 to 35 kV	2 ft. 4 in. (.711 M)
35.1 kv to 46.0 kV	2 ft. 6 in. (.762 M)
46.1 kv to 72.5 kV	3 ft. 0 in. (.914 M)
72.6 kv to 121.0 kV	3 ft. 4 in. (1.016 M)
138.0 kv to 145.0 kV	3 ft. 6 in. (1.067 M)
161.0 kv to 169.0 kV	3 ft. 8 in. (1.118 M)
230.0 kv to 242.0 kV	5 ft. 0 in. (1.524 M)
345.0 kv to 362.0 kV	7 ft. 0 in. (2.134 M)
500.0 kv to 552.0 kV	11 ft. 0 in. (3.453 M)
700.0 kv to 765.0 kV	15 ft. 0 in. (4.572 M)

## WORK PRACTICES

### R 408.15331. Climbing.

**Rule 5331.**(1) An approved safety belt, tree trimming saddle belt or rope saddle shall be used by an employee when aloft.

(2) A climbing rope shall be crotched as soon as possible after the employee is aloft and located in a crotch, when possible, at a height over the work area as to swing the employee away from any conductor or line in case of a fall.

(3) The climbing employee shall remain tied in until the work is completed and he has returned to the ground.

(4) If it becomes necessary to recrotch, the employee aloft shall retie in or use a safety strap before releasing the previous tie.

(5) An employee shall not climb a tree during a storm or high wind or when covered with ice or snow, except when performing emergency service.

### R 408.15332. Pruning and trimming.

**Rule 5332.**(1) If another employee is present, a verbal warning shall be given by the employee aloft before dropping a limb.

(2) A separate work rope, controlled by an employee on the ground, shall be used to lower limbs which cannot be dropped. The work rope shall not use the same crotch over which the climbing rope is run.

(3) A cut branch or limb shall not be left aloft overnight or for an extended period unless the limb is secured to the tree or the area under the tree is roped off or barricaded.

(4) Whenever an employee is aloft in excess of 15 feet (4.572 M), a second employee or supervisor shall be within vocal hearing distance of the treed employee.

### R 408.15333. Limbing.

**Rule 5333.**(1) When possible, an employee cutting a limb shall work from the side opposite and uphill of the cut.

(2) Branches bent under tension shall be considered hazardous and the situation corrected.

### R 408.15334. Topping.

**Rule 5334.**(1) When topping, equipment such as a crane, shall be used to lower branches and limbs if the tree cannot stand the strain.

(2) When lowering large limb sections, the employee aloft shall position himself, whenever possible, above the limb being lowered.

### R 408.15335. Cabling.

**Rule 5335.**..... When cabling:

(a) The limbs or branches to be connected shall be brought to position by a block and tackle, hand winch or come-along.

(b) Not more than 2 employees shall be aloft working at opposite ends.

(c) An employee on the ground shall not be directly under the work area.

(d) An employee shall be off to 1 side when releasing a block and tackle, hand winch or come-along in case the fasteners let loose.

### R 408.15336. Felling.

**Rule 5336.**(1) Before a cut is started, a feller shall check for other employees and dead limbs, angle of tree, wind condition, location of other trees and other hazards, and plan his path of retreat.

(2) Each assisting employee on the ground shall be instructed exactly what he is to do. Other employees shall be cleared to a distance of twice the height of the tree being cut.

(3) An undercut shall be large enough, about 1/3 the diameter, to safely guide the tree and reduce the possibility of the tree splitting. (See figure 1)

(4) A back cut shall leave sufficient hinge wood (the distance between notch and back cut) to guide the tree's fall in the desired direction and to hold the tree to the stump during most of its fall. A back cut shall be about 2 inches (50.8mm) above the undercut and as level as possible. (See figure 1.)

(5) Before starting a back cut, a feller shall clear the area of other persons or equipment.

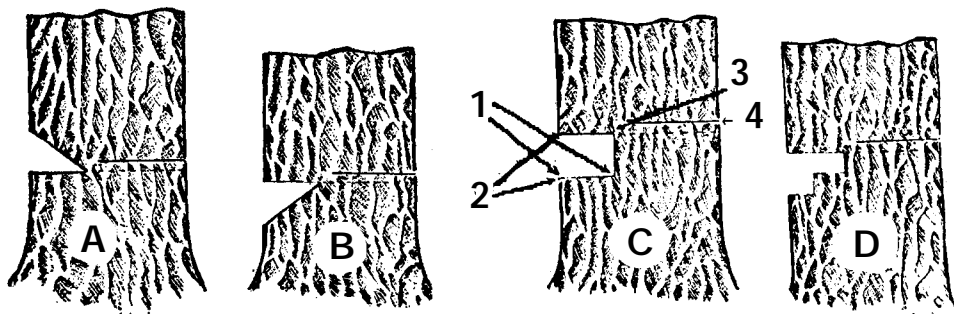
(6) The saw shall be shut off before the feller starts his retreat.

(7) Where a tree is likely to slide or roll, a feller shall cut from the uphill side.

(8) Just before the tree is ready to fall, an audible warning shall be given.

(9) If there is danger of a tree falling the wrong way, such means as wedges, block and tackle or rope shall be used to control the fall.

Figure 1  
APPROVED UNDERCUTS



A. Conventional undercut. Can be made with parallel saw cut and axe diagonal cut or both cuts with the saw. Generally used on trees of small diameter.

B. Both cuts made with the saw. Leaves square-end log. Same as "A", except that waste is put on the stump.

C. Two parallel cuts with the saw. The material between the cuts is chipped out with an axe-adze (pulaski) combination. Used on trees over 30" in diameter.

D. Three parallel cuts with the saw, leaving a step. Same in principle as above. Used on trees of very large diameters.

**R 408.15337. Bucking.****Rule 5337.**..... When bucking:

- (a) An employee shall work from the uphill side.
- (b) The log or limb shall be blocked to prevent rolling.
- (c) Wedges shall be used on trunks and limbs of large trees to prevent binding the saw guide bar or chain.

**R 408.15338. Brush removal and chipping.****Rule 5338.**(1) Cut brush and logs shall not be allowed to create a hazard in the work area.

(2) A chipper shall be fed from the side of the center line of the opening and the employee feeding the chipper shall immediately turn away when brush is taken into the rotor chamber. Where applicable, the chipper shall be fed from the curb side.

(3) An employee shall not place any part of the body on the chipper table nor shall the discharge chute be raised while the rotor is turning.

(4) Foreign material, such as stones, bottles, nails or sweepings, shall not be fed into the chipper.

(5) An employee feeding a chipper shall not wear attire such as, clothing with loose sleeves, gauntlet gloves, watches or rings. Rings covered by gloves or tape will be considered to be in compliance.

## TOOLS AND EQUIPMENT

**R 408.15341. Mobile equipment, general.****Rule 5341.**(1) The muffler and exhaust pipe of mobile equipment used in tree trimming removal operations shall be guarded or so located as to prevent contact by an employee during normal use.

(2) Defects or malfunctions of mobile equipment which affect its safe operation shall be corrected before being placed into use. During maintenance, the equipment shall be shut off and at rest, except when necessary to make adjustments with the equipment running.

(3) An employee shall not attempt to locate an unseen hydraulic leak by use of hands or fingers unless the equipment is shut off and depressurized.

(4) Before backing up any mobile equipment including a truck, the operator shall check the rear area. Where the area may be congested with people or the view obscured because of the load or type of equipment, the mobile equipment shall be equipped with an automatic back up alarm or an employee shall assist the operator.

(5) Tools, material and equipment shall be stored or otherwise secured on a vehicle during transit.

(6) An employee shall ride only in a designated seat of mobile equipment which is secured to the equipment, except as prescribed in subrule (1) of rule 5344.

(7) Mobile equipment shall not be operated at more than its rated capacity.

(8) Work platforms and steps on mobile equipment shall have a slip-resistant surface.

(9) A pad shall be set under an outrigger foot when it is put on a soft surface. Traction for outrigger feet shall be assured where ice and snow are present.

(10) When outriggers are provided on mobile equipment which is being used to lift or dig, the outriggers shall be extended. An audible warning such as a horn, bell or voice, shall be used when lowering outriggers.

**R 408.15342. Aerial lifts.****Rule 5342.**(1) An aerial lift used for tree trimming, pruning or removal of a tree shall be used and maintained as prescribed in the general industry safety standards commission standard, Part 58, Vehicle Mounted and Rotating Work Platforms, being R 408.15801 to R 408.15832 of the Michigan Administrative Code.

(2) A bucket of an aerial lift shall not be depended on to be electrically insulated.

(3) An aerial lift shall not be used to lift or lower materials unless specifically designed to perform such operations.

(4) An employee shall not ride a bucket when the vehicle is moving.

**R 408.15343. Brush chippers.****Rule 5343.**(1) A brush chipper shall be equipped with a locking device on the ignition system which shall be kept locked with the key removed when the chipper is unattended.

(2) Access panels for maintenance and adjustment shall be closed and secured before the equipment is operated.

(3) The infeed hopper or table of a chipper shall be of such design as to prevent an employee reaching the rotor blades or knives during normal operation.

(4) A trailer type chipper, when detached from a vehicle shall be chocked or otherwise secured.

(5) Flap type guards, designed to prevent kickback of chips, shall be installed at the feed opening of a chipper.

(6) A chipper rotor shall be blocked from turning when performing maintenance on the rotor.

**R 408.15344. Sprayers and related equipment.****Rule 5344.**(1) An employee required to operate spray equipment from a moving vehicle shall wear a seat belt or be protected by a guardrail if operating from a standing position. The standard barrier shall be as prescribed in rule 231 of the general industry safety standards commission standard, Part 2, Floor and Wall Openings, Stairways and Skylights, being R 408.10231 of the Michigan Administrative Code.

(2) An employee wearing clothing wetted by a flammable or combustible liquid shall avoid sparks and open flame. The clothing shall be removed as soon as possible.

**R 408.15345. Stump cutters.****Rule 5345.**A stump cutter shall be equipped with enclosure guards to protect an employee from the rotating cutter and flying chips.**R 408.15346. Trucks.****Rule 5346.**(1) A truck used to haul brush, limbs and logs shall be equipped with a bulkhead that will contain any load shift stress to protect the occupants of the truck cab from load movement due to emergency stops.

(2) Trucks used to pull chippers or to transport logs and limbs shall comply with subrule (4) of rule 5341.

**R 408.15347. Log loaders, cranes and related hoists.****Rule 5347.**(1) The operator of a log loader, crane and related hoists, when in use, shall perform a daily visual inspection of ropes, wire ropes, gears, chain drives and other parts subject to wear or strain. When a part is found defective, it shall not be used until replaced or repaired.

(2) The operator shall not leave the controls while a load is suspended.

(3) Riding on a hoisted load shall be prohibited.

(4) The equipment shall have a conspicuously placed sign containing the following or equivalent wording:

"Warning — Keep Clear of this Equipment when in Operation."

(5) A crane shall be operated and maintained as prescribed in the general industry safety standards commission standard, Part 19, Locomotive, Crawler and Truck Cranes, being R 408.11901 to R 408.11972 of the Michigan Administrative Code.

**R 408.15348. Off highway equipment and tracked vehicles.****Rule 5348.**(1) An operator of off the highway equipment and tracked vehicles shall be protected by guarding from shifting trees and branches, including roll over protection and seat belts as prescribed in construction safety standards

commission standard, Part 13, Mobile Equipment, being R 408.41301 et. seq. of the Michigan Administrative Code.

(2) The equipment shall be operated in a manner to protect the operator and other employees. The equipment shall be kept in gear when descending grades.

## HAND AND PORTABLE TOOLS

### R 408.15351. Portable electric powered tools.

**Rule 5351.**(1) A portable electric powered tool shall not be used in a tree near an energized conductor where the tool or cord could possibly come in contact with the conductor.

(2) Unless a tool is powered by a non-electric power source or is double insulated and so labeled, it shall be grounded.

(3) An extension cord shall have a connected ground wire, be free of defects and have no metal sockets.

(4) A portable electric powered tool operator shall:

- (a) Use such a tool as prescribed in the general industry safety standards commission standard, Part 38, Hand and Portable Powered Tools, being R 408.13801 to R 408.13882 of the Michigan Administrative Code.
- (b) Prevent the cords from being entangled, damaged or cut by blades and bits.
- (c) Not lay an extension cord in water, unless it is not spliced and is waterproof with waterproof connections.

### R 408.15352. Power saws and pruners.

**Rule 5352.**(1) A power saw weighing more than 15 pounds (6.803 kg) that is used in a tree shall be supported by a separate work rope, except when working from an aerial lift.

(2) A scare line used to support a saw weighing less than 15 pounds (6.803 kg) shall be of such length to allow the saw to swing clear of the operator.

(3) When starting a power saw, the operator shall have secure footing and the saw shall be firmly supported. The saw shall be started and operated when all other employees are in the clear.

(4) A power saw shall be operated and maintained as prescribed in the general industry safety standards commission standard, Part 38, Hand and Portable Powered Tools.

(5) A power saw shall not be raised to or lowered from a tree with the motor running.

(6) A saw motor shall not be left running when the saw is not in use.

(7) Pneumatic or hydraulic tools powered from a bucket of a vehicle mounted and rotating work platform shall:

- (a) Be inspected daily before use.
- (b) Be secured on or from the bucket when aloft and not in use.
- (c) Be disconnected from the power source for sharpening or adjustment.
- (d) Have hoses of nonconductive material.

### R 408.15353. Back pack units.

**Rule 5353.**(1) Other employees shall maintain a distance of not less than 10 feet (3.05 M) from an operator of the cutting head of a back pack brush saw.

(2) The operator shall observe the location of all employees while the unit is running.

(3) The power unit shall be equipped with a shutoff switch readily accessible to the operator.

(4) The unit shall be stopped for all cleaning, refueling and repairs.

### R 408.15354. Hand tool safety, general.

**Rule 5354.**(1) An employee climbing aloft shall not carry a tool in his hand. A pole saw or pruner may be raised and

hooked ahead of the climber. Other tools shall be raised and lowered by a hand line, carried on a tool belt or in a tool bag.

(2) A hand tool shall not be dropped from aloft.

(3) A hand tool shall be used and maintained as prescribed in the general industry safety standards commission standard, Part 38, Hand and Portable Powered Tools.

### R 408.15355. Pruners and saws.

**Rule 5355.**(1) A pole pruner, pole saw and other similar tool shall be equipped with a nonmetallic handle. The actuating cord shall be of nonmetallic material.

(2) A pole pruner or pole saw shall be hung securely in a vertical position to prevent dislodgement. A pole pruner or pole saw shall not be hung on a utility line or left in a tree overnight. A pole saw shall be hung so that the sharp edge is away from the employee.

(3) A scabbard or sheath shall be hooked to the belt or safety saddle to carry a hand saw when it is not in use.

### R 408.15356. Herbicide injector tools.

**Rule 5356.**(1) The bit of a herbicide injector tool shall be covered with a shield and laid flat on the ground when not in use.

(2) The injector shall be carried by the loop handle on the downhill side with the bit shielded and facing the rear.

(3) An employee using a tool shall have firm footing and shall have cleared away all interfering brush.

### R 408.15357. Grub hoes, mattocks and picks.

**Rule 5357.**(1) The blade eye of a grub hoe, mattock or pick shall be tight fitting and wedged so that it cannot slide down the handle.

(2) When swinging a tool, the employee shall have a secure grip and firm footing.

### R 408.15358. Cant hooks, cant dogs, tongs and carrying bars.

**Rule 5358.**(1) The hooks of a cant hook, cant dog, tongs or carrying bar shall be firmly set before applying pressure.

(2) The point of a hook shall be not less than 2 inches (50.8 mm) long and maintain sharp.

(3) Other employees shall be warned and in the clear before a log is moved.

(4) When rolling a log, the employee shall stand to the rear and uphill.

### R 408.15359. Tackle blocks and pulleys.

**Rule 5359.**A tackle block and pulley shall be inspected before each use and, if found defective, shall not be used.

### R 408.15360. Chopping tools.

**Rule 5360.**.....A chopping tool shall:

- (a) Not be used while aloft.
- (b) Not be used as a wedge or to drive a wedge.
- (c) Be swung away from the feet, legs and body.

### R 408.15361. Ropes.

**Rule 5361.**(1) A rope shall be inspected before each day's use for the following conditions:

- (a) Externally for abrasions, cut or broken fibers, decay, burns, lack of strength, softness, variation in size or roundness of the strands.
  - (b) Internally, be separating the strands at 3 foot (.914 M) intervals, for broken fibers, presence of grit, mildew or mold, color change of the fibers, or powdering and short loose fibers.
  - (c) Wear or damage of a work rope where the tautline hitch is used. That section showing wear or damage shall be cut off.
- (2) A rope showing any of the defects listed in subrule (1), which would constitute a hazard, shall be replaced.

(3) A rope shall be stored in a dry location in coils or on a reel.

(4) A wet rope shall be dried by placing it in the sunshine or a warm room by hanging loosely over a rounded peg or hook.

(5) A rope shall not be:

(a) Kinked or run over sharp corners.

(b) Used when frozen or left in freezing temperatures when wet.

(6) A climbing rope shall not be spliced.

(7) A climbing rope shall not be left aloft overnight.

**R 408.15362. Ladders.**

**Rule 5362.**(1) A ladder made of metal or other conductive material shall not be used next to electrical conductors or

wires within a distance equal to twice the extended length of the ladder. Such ladders shall be marked: "Restricted use; do not use near electrical conductors".

(2) A ladder shall be used and maintained as prescribed in the general industry safety standards commission standard, Part 4, Portable Ladders, being R 408.10401 to R 408.10456 of the Michigan Administrative Code.

**R 408.15363. Climbing spurs.**

**Rule 5363.**(1) Where climbing spurs are used, they shall be the tree climbing type with gaffs of the type and length suitable for the tree being climbed.

(2) Climbing spurs shall be inspected prior to each day's use for sharpness, length of gaff and proper type for the job. The climbing spurs shall be maintained sharp.